

REMARKS

Claims 20-28 and 31 are pending in this application. By this Amendment, claims 20 and 31 are amended. Support for the amendments to claims 20 and 31 can be found in Applicant's specification, for example, at page 44, lines 18-21, and in Fig. 21. No new matter is added. A Request for Continued Examination is attached. Reconsideration of the application based on the above amendments and following remarks is respectfully requested.

The Office Action objects to claim 31 due to an informality. The objection is obviated in view of the amendments to claim 31. Accordingly, it is respectfully requested that the objection be withdrawn.

The Office Action rejects claims 20-28 and 31 under 35 U.S.C. §101 as allegedly failing to comply with the written description requirement. This rejection is obviated in view of the amendments to claims 20 and 31 in which the expression "an arrangement of the transport electrodes in even arrays is out of phase" is deleted. Accordingly, it is respectfully requested that the rejection be withdrawn.

The Office Action rejects claim 31 under 35 U.S.C. §102(b) over JP-A-03-119875 to Nishiki. This rejection is respectfully traversed.

Nishiki fails to disclose a plurality of vertical CCDs that have two transport electrodes in which an order of the transport electrodes of each photosensor of the photosensors in an even number array is reverse to an order of the transport electrodes of each immediately horizontally adjacent photosensor of the photosensors in an odd number array, as recited in independent claim 31.

In rejecting independent claim 31, the Office Action alleges that the vertical CCDs V1-V5 correspond to the claimed plurality of vertical CCDs. The Office Action's analysis fails for at least the following reasons.

As shown in Figs. 1-4 of Nishiki, Nishiki discloses various wiring patterns of the vertical CCDs V1-V5 together. However, Nishiki fails to disclose a feature that can reasonably be interpreted to correspond the above quoted features recited in claim 31. Fig. 2 of Nshiki illustrates that the transfer electrodes of mutually adjacent vertical CCD parts V1 to V5 are crossed and connected for every four electrodes. Being crossed and connected for every four electrodes is different from the features recited in independent claim 31. In particular, claim 31 requires that the order of the transport electrodes of each photosensor be reverse to that of the transport electrodes of each immediately horizontally adjacent photosensor. Nishiki, on the other hand, illustrates in Fig. 2 that the order of electrodes for the first A-field is K11, K21 and the order of electrodes for the A-field that is immediately horizontally adjacent to the first A-field is K41, K31. If the order of the electrodes in the A-field that is immediately horizontally adjacent to the first A-field were reverse to that of the first A-field, then the order would be K21, K11, not K41, K31. Therefore, Nishiki fails to disclose all of the features that are positively recited in independent claim 31. Accordingly, it is respectfully requested that the rejection be withdrawn.

The Office Action rejects claim 20 under 35 U.S.C. §103(a) over U.S. Patent No. 7,230,646 to Glenn, in view of Nishiki; and rejects claims 20, 21 and 25 under 35 U.S.C. §103(a) over U.S. Patent No. 4,799,109 to Esser et al. (Esser), in view of Nishiki. These rejections are respectfully traversed.

The combination of Glenn and Nishiki and the combination of Esser and Nishiki would not have rendered obvious a plurality of vertical CCDs that have two transport electrodes in which an order of the transport electrodes of each photosensor of the photosensors in an even number array is reverse to an order of the transport electrodes of each immediately horizontally adjacent photosensor of the photosensors in an odd number array, as recited in independent claim 20.

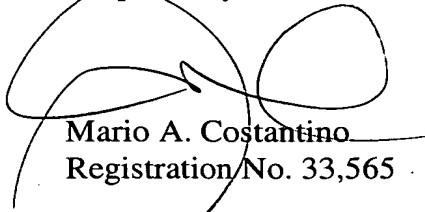
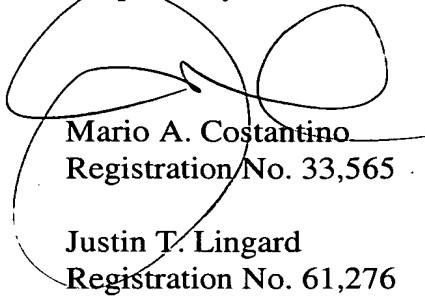
The Office Action acknowledges that both Glenn and Esser fail to disclose the above-quoted features, but relies on Nishiki as allegedly overcoming the deficiencies. Nishiki fails to overcome the deficiencies of Glenn and Esser for the same reasons as discussed above with respect to independent claim 31. Therefore, independent claim 20 is patentable over the combination of applied references for at least these reasons. Claims 21 and 25 incorporate the features of claim 20, and also are patentable over the applied references for at least this reason, as well as for the additional features that these claims recite. Accordingly, it is respectfully requested that the rejections be withdrawn.

The Office Action rejects claims 22 and 26 under 35 U.S.C. §103(a) over Esser in view of Nishiki, and further in view of U.S. Patent No. 6,765,611 to Gallagher et al. (Gallagher); rejects claims 23 and 27 under 35 U.S.C. §103(a) over Esser in view of Nishiki, and further in view of U.S. Patent No. 6,665,010 to Morris et al. (Morris); and rejects claims 24 and 28 under 35 U.S.C. §103(a) over Esser in view of Nishiki, and further in view of U.S. Patent No. 6,982,751 to Tanaka. These rejections are respectfully traversed.

Claims 22-24 and 26-28 incorporate the features of independent claim 20. Gallagher, Morris and Tanaka fail to overcome the deficiencies of Glenn, Esser and Nishiki, as applied to independent claim 20. Therefore, claims 22-24 and 26-28 also are patentable over the applied references for at least these reasons, as well as for the additional features that these claims recite. Accordingly, it is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 20-28 and 31 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Attachment:

Request for Continued Examination

Date: September 7, 2011

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